

Serial No. 10/684,180
Appeal Brief
Page 1 of 1

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Donald H. Williams et al.

Serial No.: 10/684,180

Filed: October 10, 2003

For: METHOD OF MANUFACTURING
AN ELECTRIC MOTOR

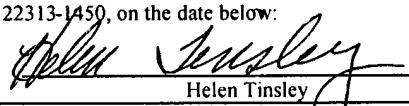
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Group Art Unit: 3729

Examiner: Phan, Thiem D.

Atty. Docket: 00RE068A/YOD
REEL:0019-1

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APPEAL BRIEF PURSUANT TO 37 C.F.R. §§ 41.31 AND 41.37

This Appeal Brief is being filed in furtherance to the Notice of Appeal mailed on September 8, 2005, and received by the Patent Office on September 19, 2005.

The Commissioner is authorized to charge the requisite fee of \$500.00, and any additional fees which may be necessary to advance prosecution of the present application, to Account No. 01-0857, Order No. 00RE068A/YOD (REEL:0019-1).

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1. REAL PARTY IN INTEREST

The real party in interest is Reliance Electric Technologies, LLC, the Assignee of the above-referenced application by virtue of the Assignment recorded at reel 011596, frame 0896, and recorded on February 28, 2001. Reliance Electric Technologies, LLC will therefore be directly affected by the Board's decision in the pending appeal.

2. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellants' legal representative in this Appeal.

3. STATUS OF CLAIMS

Claims 1-10, and 23-36 are currently pending, and claims 1, 2, 4, 7-10, 23-25, 30-32 and 34 are currently under final rejection and, thus, are the subject of this appeal.

4. STATUS OF AMENDMENTS

The Appellant has not submitted any amendments subsequent to the Final Office Action mailed on May 24, 2005.

5. SUMMARY OF THE INVENTION AND OF THE DISCLOSED EMBODIMENTS

The present invention relates generally to a field of electric motors, and wiring enclosures for housing an electrical connection between an external electrical power cable and internal electrical wiring of an electric motor. *See* Application, page 1, lines 10-13. More particularly, the invention relates to a technique for securing a conduit box to a motor. *See id.* at page 1, lines 13-14. The Application contains three independent claims, namely, claims 1, 23, and 30, all of which are the subject of this Appeal. The subject matter of these claims is summarized below.

With regard to the aspect of the invention set forth in independent claim 1, discussions of the recited features of claim 1 can be found at least in the below cited locations of the specification and drawings. By way of example, an embodiment in accordance with claim 1

provides a method of manufacturing an electric motor (e.g., 10). *See, e.g., id.* Fig. 1. The method comprises extruding a portion of a conduit box (e.g., 60) to form a hollow extension. *See, e.g., id.* at page 8, line 24-page 9, line 1; page 9, lines 7-9; *see also* Fig. 6. The method further comprises inserting the extension through a first hole (e.g., 54) in a motor housing of an electric motor. *See, e.g., id.* at page 9, lines 5-7; *see also* Fig. 6. Further, the method comprises permanently plastically deforming the extension (e.g., 78) after the extension is inserted through the first hole to form a flange (e.g., 50) thereby to prevent withdrawal of the extension through the first hole. *See, e.g., id.* at page 9, lines 7-9; page 9, lines 23-27; *see also*, Figs. 6 and 8.

With regard to the aspect of the invention set forth in independent claim 23, discussions of the recited features of claim 23 can be found at least in the below cited locations of the specification and drawings. By way of example, an embodiment in accordance with claim 23 provides a method of manufacturing an electric motor, comprising disposing an extension (e.g., 28) from a bottom of a conduit box through an opening in a motor housing (e.g., 12) of an electric motor. *See, e.g., id.* at page 5, lines 25-28; *see also* Fig. 1. Further, the method comprises plastically deforming the extension to form a flange (e.g., 50) that captures the motor housing between the flange and the bottom of the conduit box (e.g., 24) to secure the conduit box to the motor housing. *See, e.g., id.* at page 7, lines 8-10; *see also* Fig. 3.

With regard to the aspect of the invention set forth in independent claim 30, discussions of the recited features of claim 30 can be found at least in the below cited locations of the specification and drawings. By way of example, an embodiment in accordance with claim 30 provides a method of manufacturing an electric motor comprising disposing an extension (e.g., 28) from a bottom of a conduit box through an opening (e.g., 26) in a motor housing (e.g., 12) of an electric motor. *See, e.g., id.* at page 5, lines 25-28; *see also* Fig. 1. Further, the method comprises plastically deforming the extension to form a generally circular flange (e.g., 50) having a smoother inner surface and capturing the motor housing between the generally circular flange and the bottom of the conduit box to secure the conduit box to the motor housing. *See, e.g., id.* at page 7, lines 8-10; page 7, lines 26-28; *see also* Fig. 8.

The invention addresses problems with attaching junction and conduit boxes to motor frames. Existing techniques were either complex (in terms of separate parts or machinery needed), or resulted in an attachment that could loosen over time. The claimed invention is a cost-effective solution that provides for solid attachment of the conduit box in a straightforward process.

6. **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

First Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's first ground of rejection in which the Examiner rejected claims 1, 7, 8, 23 and 24 as being anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 5,519, 273 to Keck. ("Keck").

Second Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's second ground of rejection in which the Examiner rejected claims 2, 4, 9, 10, 25, 27, 30-32 and 34 as being unpatentable under 35 U.S.C. § 103(a) over Keck.

7. **ARGUMENT**

As discussed in detail below, the Examiner has improperly rejected the pending claims. Further, the Examiner has misapplied long-standing and binding legal precedents and principles in rejecting the claims under Sections 102 and 103. Accordingly, Appellants respectfully request full and favorable consideration by the Board, as Appellants strongly believe that claims 1-10 and 23-36 are currently in condition for allowance.

A. **First Ground of Rejection 1:**

The Examiner rejected claims 1, 7, 8, 23 and 24 under 35 U.S.C. § 102(b) as being unpatentable over Keck. While the Examiner rejected each of independent claims 1 and 23 on

the basis of Keck, each of these independent claims will be discussed separately below.
Appellants respectfully traverse this rejection.

1. Judicial precedent has clearly established a legal standard for an anticipation rejection.

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). Thus, for a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Moreover, the prior art reference also must show the *identical* invention “*in as complete detail as contained in the ... claim*” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Appellants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

2. Keck fails to anticipate claim 1.

Independent claim 1 recites:

A method of manufacturing an electric motor, comprising the acts of:

extruding a portion of a conduit box to form a hollow extension;

inserting the extension through a first hole in a motor housing of an electric motor; and

permanently plastically deforming the extension after the extension is inserted through the first hole *to form a flange* thereby to prevent withdrawal of the extension through the first hole.
(Emphasis added.)

a. Keck does not teach extrusion of a conduit box to form an extension during assembly of a conduit box to a motor housing.

Claim 1 recites, *inter alia*, “*extruding a portion of a conduit box* to form a hollow extension.” In one embodiment of the claimed invention, a conduit box 24 with a hole 56 in the

bottom is extruded, as with a punch-and-die assembly, so that the hole 56 and its surrounding material become the extension 78. *See, e.g.*, Figs. 5 and 6; page 8, line 24-page 9, line 13.

In rejecting independent claim 1, the Examiner stated that Keck teaches extruding or forming the extension. *See* Final Office Action, page 7, section 7. However, Keck cannot teach extrusion of a conduit box to form an extension because Keck discloses neither an extrusion nor a conduit box. The Examiner analogized the conduit box in the present invention (an embodiment of which is illustrated in Fig. 4 of the Application) to the *fitting* taught by Keck (*see, e.g.*, Keck, Fig. 2), although these are structurally different objects. This fitting is clearly not the same, or even analogous to the conduit box recited in claim 1. Similarly, the Examiner could not clearly identify an “extension” in Keck, but rather listed several elements that might correspond to the extension. Keck discloses an opening 26, an internal member 24, and an intermediate portion 44, all of which the Examiner claims are analogous to the extension in the present invention.

In the Final Office Action, the Examiner focused particularly on the meaning of “extrusion.” Regardless of how the Examiner defines “extrusion,” it is clear that Keck does not disclose extrusion of a conduit box. The fitting in Keck is “formed by injection molding.” Keck, col. 5, lines 6-7. What the examiner called an “extension” is formed via injection molding independent of the assembly process. Even if the Examiner’s analogies of the structures were correct, which the Appellants do not concede, Keck does not disclose extrusion of a conduit box to form an extension during assembly of a motor housing. Rather Keck’s “extension” is part of a completely separate fitting and not a conduit box.

b. Keck does not teach plastic deformation to form a flange.

Claim 1 recites, *inter alia*, “permanently *plastically deforming the extension* after the extension is inserted through the first hole *to form a flange* thereby to prevent withdrawal of the extension through the first hole.” (Emphasis added.) An embodiment of this process is illustrated in Figs. 7 and 8 of the Application. In this embodiment, it clearly can be seen that the punch press plastically deforms the extension that has been inserted through the hole of the motor

housing. This deformation forms the flange 50 which secures the conduit box 24 to the motor housing 12. *See, e.g.*, Application, Fig. 8.

By contrast, Keck discloses a fitting which is simply attached or fitted to an electric motor housing. This fitting 12 is attached to the motor housing by resting the fitting in a notch 50 at one end of the motor housing shell 10. The fitting is then secured to the motor housing by an endshield 54 which is attached to the end of the motor housing shell 10. The interior member 24 of the fitting is fully formed before it is placed in the notch of the motor housing shell (Keck, col. 5, lines 6-9). Projections 46A-D on the upper surface of the fitting are crushed when the endshield 54 is secured to the motor housing shell 10 (Keck, col. 5, lines 50-52). *See, generally*, Keck, Fig. 6.

The Examiner stated:

Keck teaches a process for fitting a conduit box to an electric motor (Abstract), comprising: ... permanently plastically deforming the extension by deforming the crushable projections (Fig. 2, 46A-D; col. 5, lines 50 ff.) after the extension is inserted through the first hole to form a flange (Fig. 2, 24) thereby to prevent withdrawal of the extension through the first hole. Final Office Action, pages 2-3, section 3.

The Examiner's analogies are flawed. Keck in no way teaches plastic deformation of an extension, or any similar element. Furthermore, any plastic deformation which might occur does not form a flange.

As discussed above, the Examiner identified several elements of the Keck arrangement said to be analogous to the extension in claim 1. Despite this list of possibly analogous elements, the Examiner failed to identify *an extension* from Keck *which undergoes plastic deformation*. Rather, Keck discloses "crushable projections" which "are disposed on the upper surface of intermediate portion 44." Keck, col. 5, lines 21-22; *see also* Fig. 2, elements 46A-D. These projections are crushed during assembly of the fitting onto the motor housing. *See*, Keck, col. 5,

lines 50-52. While these projections undergo what could be called plastic deformation, they are not an extension, nor has the Examiner identified them as such.

Still more importantly, even if, *arguendo*, the crushable projections could be considered part of an extension, their deformation does not form a flange. The Examiner clearly analogized the internal member 24 of Keck to the flange in claim 1. Final Office Action, page 3, section 3. Deformation of the projections in Keck in no way forms a flange. Appellants would generally agree that the only element that in any way resembles a flange in Keck is the internal member 24. However, deformation of the crushable projections 46A-D has no effect on the shape or function of the internal member 24.

The crushable projections of Keck do not function as a flange. Deformation of the crushable projections in Keck does not “prevent withdrawal of the extension” from the motor housing as required of the flange from claim 1. Rather, in the Keck arrangement, according to the reference itself, “surfaces of endshield 54 and shell 10 firmly hold fitting 12 in place.” Keck, col. 5, lines 53-54; *see also* Fig. 6. The purpose of deforming the crushable projections is to “substantially prevent water, dirt and oil from entering into the motor.” Keck, col. 6, lines 2-3.

Thus, the deformation in Keck is different not only structurally, but also functionally, and cannot properly read on the plastic deformation recited in claim 1 of the present application. For the reasons listed above, Keck clearly does not disclose plastic deformation to form a flange.

c. Any element of the Keck fitting analogous to the claimed flange is not formed by plastic deformation during assembly of a conduit box to a motor housing.

Similarly, as noted above, claim 1 recites, *inter alia*, “permanently *plastically deforming the extension* after the extension is inserted through the first hole *to form a flange* thereby to prevent withdrawal of the extension through the first hole.” (Emphasis added.) As illustrated in Figs. 7 and 8 of the Application, and as discussed above, the flange in claim 1 is clearly formed by plastic deformation.

Keck discloses a fitting 12 with an internal member 24. *See, generally*, Keck, Figs. 2, 3, 4, 5, and 6. This fitting “is formed by injection molding.” Keck, col. 5, lines 6-7. The fitting is fully formed independent of assembly to the motor housing and, indeed, would be formed prior to the motor assembly process.

As noted above, the Examiner appeared to state that crushing of Keck’s projections somehow forms the internal member 24. However, Keck clearly does not disclose a flange formed by plastic deformation. Here again, the Examiner analogized the internal member 24 of Keck to the flange in claim 1. As discussed previously, the fitting in Keck is *pre-formed via injection molding* independent of assembly of the fitting to the motor housing. Thus, the “flange” of Keck has already been formed when the crushable projections are deformed.

Deformation of the crushable projections is the only step in Keck which can possibly be construed as plastic deformation during assembly of the fitting to the motor housing. As this deformation has nothing whatsoever to do with creation of a flange, discussed above, there is clearly nothing in Keck that teaches formation of a flange by plastic deformation during assembly of a conduit box to a motor housing.

Appellants thus conclude that Keck cannot anticipate claim 1. Accordingly, claim 1 and its dependent claims are clearly patentable. Accordingly, Appellants request the Board overturn the rejection and allow independent claim 1 as well as dependent claims therefrom.

3. Keck similarly does not anticipate claim 23.

a. Independent claim 23 recites:

A method of manufacturing an electric motor, comprising the acts of:
disposing an extension from a bottom of a conduit box through an in through a motor housing of an electric motor;
and
plastically deforming the extension to form a flange that captures the motor housing between the flange and the

bottom of the conduit box to secure the conduit box to the motor housing. (Emphasis added.)

b. Keck does not teach plastic deformation to form a flange to secure the conduit box to the motor housing.

Similar to claim 1, claim 23 recites, *inter alia*, “*plastically deforming the extension to form a flange* that captures the motor housing between the flange and the bottom of the conduit box *to secure the conduit box to the motor housing.*” (Emphasis added.) An illustration of the resulting structure can be seen in Fig. 9. The motor housing 12 is clearly caught between the flange 50 and the bottom of the conduit box 26. In addition, Figs. 7 and 8 show an example of formation of the flange through plastic deformation.

As discussed in relation to claim 1, Keck in no way teaches plastic deformation to form a flange. Any plastic deformation that occurs in Keck is unrelated to formation of a flange.

In addition, the deformation in Keck does not serve to “capture[] the motor housing between the flange and the bottom of the conduit box to secure the conduit box to the motor housing” as required in claim 23. Rather, as noted above, the deformation in Keck serves to seal water, dirt and oil out of the motor housing. Keck, col. 6, lines 2-3. Moreover, the fitting in Keck is secured to the motor housing via a pre-formed groove in the fitting and pressure on the fitting from the endshield. *See*, Keck, Fig. 6; *see also* col. 5, lines 42-54.

For at least these reasons, Keck clearly does not disclose plastic deformation to form a flange to secure the conduit box to the motor housing.

c. Any element of the Keck fitting analogous to the claimed flange is not formed by plastic deformation during assembly of a conduit box to a motor housing.

Claim 23 also recites, *inter alia*, “*plastically deforming the extension to form a flange* that captures the motor housing between the flange and the bottom of the conduit box to secure the

conduit box to the motor housing.” (Emphasis added.) As discussed in relation to claim 1, Keck does not disclose a flange formed by plastic deformation.

Accordingly Keck cannot support anticipate claim 23. Claim 23 and its dependent claims are therefore patentable over Keck. Accordingly, Appellants request the Board overturn the rejection and allow independent claim 23 as and dependent claims therefrom.

B. Second Ground of Rejection:

The Examiner rejected claims 2, 4, 9, 10, 25, 27, 30-32 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Keck. Appellants respectfully traverse this rejection.

1. Judicial precedent has clearly established a legal standard for a *prima facie* obviousness rejection.

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes all of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

2. **The Examiner's rejection of independent claim 30 is improper because the rejection fails to establish a *prima facie* case of obviousness.**

a. Independent claim 30 recites:

A method of manufacturing an electric motor, comprising the acts of:

disposing an extension from a bottom of a conduit box through an opening in a motor housing of an electric motor; and
plastically deforming the extension to form a generally circular flange having a smooth inner surface and capturing the motor housing between the generally circular flange and the bottom of the conduit box to secure the conduit box to the motor housing.
(Emphasis added.)

b. **Keck fails to teach forming a flange by plastic deformations.**

Thus, independent claim 30 recites a method of manufacturing an electric motor. Claim 30 recites, *inter alia*, “plastically deforming the extension *to form a generally circular flange* having a smooth inner surface and capturing the motor housing between the generally circular flange and the bottom of the conduit box to secure the conduit box to the motor housing.” (Emphasis added.) Claim 30 may be differentiated from claims 1 and 23, for example, in that the claimed flange is generally circular. This difference does not impact the function or formation of the flange discussed above.

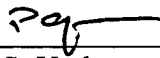
As discussed above, Keck does not disclose a flange formed by plastic deformation as required by claim 30. Therefore, the Examiner clearly has not shown all of the claimed elements as required for a rejection under 35 U.S.C. § 103. The formation of a “generally circular flange” as required by claim 30 is clearly more than a “mere matter of design choice” over Keck as the Examiner stated. *See*, Final Office Action, page 5, section 5. Therefore, Appellants respectfully submit that a *prima facie* case of obviousness of claim 30 and its dependent claims simply cannot be supported by Keck, and request that the rejection of claim 30 and claims depending therefrom be withdrawn.

Conclusion

Appellants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: November 9, 2005



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8. APPENDIX OF CLAIMS ON APPEAL

1. (previously presented) A method of manufacturing an electric motor, comprising the acts of:

extruding a portion of a conduit box to form a hollow extension;
inserting the extension through a first hole in a motor housing of an electric motor; and
permanently plastically deforming the extension after the extension is inserted through the first hole to form a flange thereby to prevent withdrawal of the extension through the first hole.

2. (original) The method as recited in claim 1, wherein extruding comprises driving a first punch through a second hole in the conduit box to form a generally cylindrical extension.

3. (original) The method as recited in claim 2, wherein driving a first punch comprises pressing a conical portion of the first punch into the second hole followed by a cylindrical portion of the first punch.

4. (original) The method as recited in claim 2, wherein inserting comprises inserting the generally cylindrical extension through a generally circular first hole in the motor housing.

5. (original) The method as recited in claim 4, wherein plastically deforming the extension comprises driving a second punch against the generally cylindrical extension to form a generally circular flange.

6. (original) The method as recited in claim 5, wherein driving a second punch comprises pressing a conical portion of the second punch into the generally cylindrical extension followed by a cylindrical portion of the second punch.

7. (original) The method as recited in claim 1, further comprising disposing a stator within the motor housing.

8. (original) The method as recited in claim 7, further comprising routing a plurality of conductors from the stator to the conduit box through the extension.

9. (original) The method as recited in claim 7, further comprising threading a first member through the conduit box and the motor housing to prevent the stator from rotating and to prevent movement of the conduit box.

10. (original) The method as recited in claim 1, wherein plastically deforming comprises coining the extension against an interior surface of the motor housing.

11. - 22. (canceled).

23. (previously presented) A method of manufacturing an electric motor, comprising the acts of:

disposing an extension from a bottom of a conduit box through an in through a motor housing of an electric motor; and

plastically deforming the extension to form a flange that captures the motor housing between the flange and the bottom of the conduit box to secure the conduit box to the motor housing.

24. (previously presented) The method as recited in claim 23, comprising extruding a portion of the conduit box to form the extension.

25. (original) The method as recited in claim 24, wherein extruding comprises driving a first punch through an opening in the conduit box to form a generally cylindrical extension.

26. (original) The method as recited in claim 25, wherein driving a first punch comprises pressing a conical portion of the first punch into the second hole followed by a cylindrical portion of the first punch.

27. (original) The method as recited in claim 25, wherein the opening in the motor housing is generally circular and disposing comprises inserting the generally cylindrical extension through the generally circular first hole in the motor housing.

28. (original) The method as recited in claim 27, wherein plastically deforming the extension comprises driving a second punch against the generally cylindrical extension to form a generally circular flange.

29. (original) The method as recited in claim 28, wherein driving a second punch comprises pressing a conical portion of the second punch into the generally cylindrical extension followed by a cylindrical portion of the second punch.

30. (previously presented) A method of manufacturing an electric motor, comprising the acts of:

disposing an extension from a bottom of a conduit box through an opening in a motor housing of an electric motor; and

plastically deforming the extension to form a generally circular flange having a smooth inner surface and capturing the motor housing between the generally circular flange and the bottom of the conduit box to secure the conduit box to the motor housing.

31. (previously presented) The method as recited in claim 30, comprising extruding a portion of the conduit box to form the extension.

32. (previously presented) The method as recited in claim 31, wherein extruding comprises driving a first punch through an opening in the conduit box to form a generally cylindrical extension.

33. (previously presented) The method as recited in claim 32, wherein driving a first punch comprises pressing a conical portion of the first punch into the opening in the conduit box hole followed by a cylindrical portion of the first punch.

34. (previously presented) The method as recited in claim 30, wherein the opening in the motor housing is generally circular and disposing comprises inserting the generally cylindrical extension through the generally circular first hole in the motor housing.

35. (previously presented) The method as recited in claim 34, wherein plastically deforming the extension comprises driving a second punch against the generally cylindrical extension forming the generally circular flange.

36. (previously presented) The method as recited in claim 35, wherein driving a second punch comprises pressing a conical portion of the second punch into the generally cylindrical extension followed by a cylindrical portion of the second punch, the cylindrical portion of the second punch having an arcuate profile, such that that it presses the generally circular flange flush against the surface of the motor housing.

9. **APPENDIX OF EVIDENCE**

None.

10. **APPENDIX OF RELATED PROCEEDINGS**

None.